

Response to Office Action of November 2, 2004
U.S. Application No.: 10/633,253

Attorney Docket No.: FSF-031431

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-20 (cancelled)

21. (new) A photothermographic material comprising, on one surface of a support, a photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent for a silver ion, and a binder, which are applied to the support using an organic solvent, wherein the photosensitive silver halide has a silver iodide content of 40 % by mol to 100 % by mol, and the photothermographic material further comprises a compound represented by formula (4) or a precursor thereof:

Formula (4) $E-(W)_n-F$

wherein in formula (4),

E represents an atomic group containing a group that can be adsorbed to a silver halide; W represents a divalent linking group; n represents 0 or 1; and F represents a reducing group derived from a hydroxyurea or a phenidone.

22. (new) The photothermographic material according to claim 21, wherein the group that can be adsorbed to a silver halide in formula (4) is a mercapto group, a thione group, or a group that generates an imino silver.

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23. (new) The photothermographic material according to claim 22, wherein the group that can be adsorbed to a silver halide in formula (4) is a mercapto group.

24. (new) The photothermographic material according to claim 21, wherein the reducing group represented by F in formula (4) is a group derived from a hydroxyurea.

25. (new) The photothermographic material according to claim 21, wherein the precursor is a compound which generates a mercapto group.

26. (new) The photothermographic material according to claim 21, wherein the precursor is a thiazolium, a thiazoline, a thiazolidine, or a disulfide.

27. (new) The photothermographic material according to claim 21, wherein the precursor is a thiazolium having a triple bond on a substituent.

28. (new) The photothermographic material according to claim 21, wherein an average grain size of the photosensitive silver halide is from 5 nm to 50 nm.

29. (new) The photothermographic material according to claim 21, wherein the silver iodide content of the photosensitive silver halide is from

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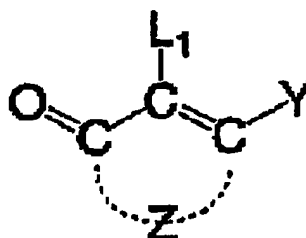
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90% by mol to 100% by mol.

30. (new) The photothermographic material according to claim 21 comprising, as the binder, polyvinyl butyral in an amount of 50% by weight to 100% by weight based on a total binder component in a photosensitive layer which is provided on the support.

31. (new) A photothermographic material comprising, on one surface of a support, a photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent for a silver ion, and a binder, which are applied to the support using an organic solvent, wherein the photothermographic material further comprises a compound represented by formula (1):

Formula (1)



wherein in formula (1),

Y represents a hydroxyl group or an -NL₂L₃ group, in which L₂ and L₃ may be same as or different from each other and each independently represent a hydrogen atom, an alkyl group, or an aryl group;

L₁ represents a sulfur-containing saturated heterocyclic residue, an alkyl group, an aryl group, a hydrogen group, or a group represented by

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-A-S-B in which A represents an alkylene group and B represents a hydrogen atom, an alkyl group, or an aryl group; and

Z represents an atomic group required for forming a 5- or 6-membered carbon ring which may have a substituent.

32. (new) The photothermographic material according to claim 31, wherein a content of silver iodide in the photosensitive silver halide is from 40% by mol to 100% by mol.

33. (new) The photothermographic material according to claim 31, wherein an average grain diameter of the photosensitive silver halide is from 5 nm to 80 nm.

34. (new) The photothermographic material according to claim 31, wherein L₁ in formula (1) represents a sulfur-containing saturated heterocyclic residue or a group represented by -A-S-B.

35. (new) The photothermographic material according to claim 31, wherein Z in formula (1) represents an atomic group required for forming a 6-membered carbon ring.

36. (new) The photothermographic material according to claim 31, wherein Y in formula (1) represents a hydroxyl group.

37. (new) The photothermographic material according to claim 31,

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wherein a silver iodide content of the photosensitive silver halide is from 90% by mol to 100% by mol.

38. (new) The photothermographic material according to claim 31 comprising, as the binder, polyvinyl butyral in an amount of 50% by weight to 100% by weight based on a total binder component in a photosensitive layer which is provided on the support.

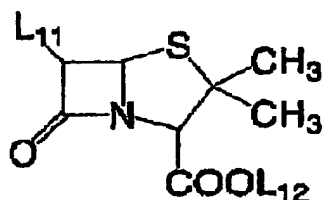
39. (new) A photothermographic material comprising, on one surface of a support, a photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent for a silver ion, and a binder, which are applied to the support using an organic solvent, wherein the photosensitive silver halide has a silver iodide content of 40 % by mol to 100 % by mol, the photothermographic material further comprises a compound having a β -lactam ring, and the compound having a β -lactam ring is a penicillin or a cephalosporin.

40. (new) The photothermographic material according to claim 39, wherein the penicillin is represented by formula (2), and the cephalosporin is represented by formula (3):

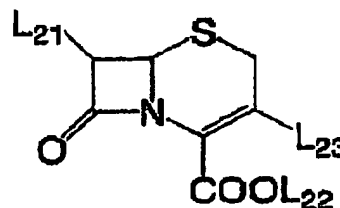
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Formula (2)



Formula (3)



wherein in formulae (2) and (3),

L₁₁ and L₂₁ each independently represent an amino group or a substituted amino group;

L₁₂ and L₂₂ each independently represent a hydrogen atom, an alkaline metal ion, a quaternary ammonium ion, a hydrocarbon, or a heterocyclic residue; and

L₂₃ represents a hydrogen atom, a halogen atom, an amino group, a hydroxyl group, a mercapto group, an alkyl group, an alkoxy group, an aryloxy group, an alkylthio group, an arylthio group, an acyloxy group, an acylthio group, a formyl group, or a heterocyclic residue.

41. (new) The photothermographic material according to claim 40, wherein in formulae (2) and (3),

L₁₁ and L₂₁ each independently represent an amino group or an acylamino group;

L₂₁ and L₂₂ each independently represent a hydrogen atom, an alkaline metal ion, or an ammonium ion; and

L₂₃ represents a non-substituted or substituted alkyl group.

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42. (new) A photothermographic material comprising, on one surface of a support, a photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent for a silver ion, and a binder, which are applied to the support using an organic solvent, wherein the photosensitive silver halide has a silver iodide content of 40 % by mol to 100 % by mol, and the photothermographic material further comprises a compound having a β -lactam ring.

43. (new) The photothermographic material according to claim 42, wherein an average grain diameter of the photosensitive silver halide is from 5 nm to 80 nm.

44. (new) The photothermographic material according to claim 42, wherein a silver iodide content of the photosensitive silver halide is from 90% by mol to 100% by mol.

45. (new) The photothermographic material according to claim 42 comprising, as the binder, polyvinyl butyral in an amount of 50% by weight to 100% by weight based on a total binder component in a photosensitive layer which is provided on the support.